Title: Live-cell tracking in time-lapse sequences

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Abstract: This diploma thesis deals with methods of tracking particles in image sequences. It's goal is to design and implement a complete system for tracking of live cells, their motion and division. The thesis uses conclusions of published scientific papers, studies their application and analyzes possibilities for their modifications or improvement.
As a result, there are two applications. First of them is a demonstrational program, provided as an attachment of this thesis. Second implementation is a module of commercial software NIS-Elements, by Laboratory Imaging, Ltd., which is used by both scientific and commercial institutions in the whole world.

Keywords: cell tracking, particle tracking, cell division